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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/788,743	02/25/2004	Douglas W. Akers	B-200	6111

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EXAMINER

PALABRICA, RICARDO J

ART UNIT PAPER NUMBER

3663

DATE MAILED: 10/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/788,743

Applicant(s)

AKERS, DOUGLAS W.

Examiner

Rick Palabrica

Art Unit

3663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10, 12-19 and 21-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-19 and 21-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Applicant's 8/10/05 Amendment, which directly amended claims 1 and 12, and traversed the rejection of claims under 35 U.S.C. 112, first paragraph, is acknowledged.

2. Applicant's traversal is on the ground that the Examiner's rejections are basically identical to those reversed by the Board of Patent Appeals and Interferences for the divisional application, S/N 10/269,807. The Examiner disagrees.

First, the Board for the divisional application clearly stated that its opinion in support of the 5/31/05 decision "is not binding precedent of the Board."

Second, there are new issues by way of new documents presented herein that the Board did not and could not have considered in its decision. These documents are examples of prior art that provide basis for cogent reasoning as to why Applicant's disclosure would not have enabled a person having ordinary skill in the art to employ various algorithms claimed by the Applicant without undue experimentation.

Derlet et al. (Journal of Materials Science Letters 15 (1996)) teaches positron annihilation lifetime spectroscopy that provides a non-destructive examination of silicon by identification of impurity concentrations and types. They teach that there is not one unique but a plurality of lifetime fitting algorithms for analysis, i.e., a discrete lifetime algorithm and a continuous lifetime algorithm. They state that different investigators (i.e., Itoh et al. and Dannefaer et al.) obtained different degrees of accuracy ("fit") even when applying the same discrete lifetime algorithm for the same material (see col.1, 2<sup>nd</sup> paragraph, page 1949). Both of these two investigators had to perform a plurality of

Art Unit: 3663

trials to obtain what they consider as satisfactory fit. Even the continuous lifetime algorithm, applied by Derlet et al. because of its advantages over the discrete algorithm, requires multiple trials on selected parameters and iteration before satisfactory results are obtained (e.g., see Table I and col. 1, 3<sup>rd</sup> paragraph, page 1950).

Banzuch et al. (Nuclear Instruments and Methods in Physics Research A 384 (1997)) teaches a positron annihilation method for examining defects in bulk material. They teach a plurality of algorithms for Doppler broadening, e.g., Van Cittert and Gold iterative algorithms. These algorithms require the evaluation of constants to fit a specific application, e.g., unit matrix E (see eq. 9, page 508). They teach that to apply either one of these algorithms requires multiple iterations (in the order of thousands) to obtain a good fit, and the required number of iterations is different depending on which of the two algorithms is used (see Section 3.1). They teach that either one of these algorithms has advantages and disadvantages (e.g., see Conclusion section). They provide recommendation on what algorithm to apply.

Zhu et al. (Nuclear Instruments and Methods in Physics Research A284 (1989)) teach an algorithm for analysis of positron annihilation lifetime data, i.e., by computer program "SPLMOD". They teach that the accuracy of the method is subject to several sources of errors, e.g., contamination of the reference and variations in the resolution function for the reference and sample data, which requires more than cursory determination (e.g., see section 7, page 449).

Shaffer (University Microfilms International, 1985) discloses a characterization of defects in aluminum by Doppler broadened positron annihilation spectroscopy. He

Art Unit: 3663

teaches that other Doppler broadened methods of solution are model dependent, require inefficient iterations and do not yield reproducible results. Shaffer uses a different algorithm for his analysis of the data, i.e., Fast Fourier Transform/Power Spectrum algorithm (see Chapter IV).

Gregory et al. (Nuclear Instruments and Methods in Physics Research A290 (1990), uses still another algorithm, i.e., CONTIN. They also teach that the quality of the analysis is strongly dependent on the information content of the data and errors in the instrument resolution can have major effects on the accuracy of the result.

These are a few examples of prior art that demonstrate that undue experimentation/trial and error is inherently required to select the best algorithm, account for potential sources of errors, and evaluate the associated constants for the selected algorithm in a non-destructive examination of specific materials for specific material defects using photon induced positron annihilation.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which

Art Unit: 3663

was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claims recite the limitation, "collecting prompt gamma ray data by detecting with the detector at least one emitted prompt gamma ray..." Underlining provided. There is neither an adequate description nor enabling disclosure as to how and in what manner positron annihilation data can be collected by detection of only one prompt gamma ray. It is a notorious scientific fact that statistically meaningful data requires collection of information from more than one event or nuclear interaction.

4. Claims 1-10, 12-19 and 21-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The reasons are the same as those stated on pages 3 and 4 of the 5/10/05 Office action, as further clarified in section 2 above, which reasons are incorporated herein.

5. Claims 1-10, 12-19 and 21-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are vague and

Art Unit: 3663

indefinite, and their metes and bounds cannot be determined for the reasons given in section 4 above.

### ***Double Patenting***

#### ***Claim Rejections – Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claim 2 is provisionally rejected under the judicially created doctrine of double patenting over claim 3 of copending Application No. 10/383,096. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: evaluation of a material specimen by bombardment with neutrons, calculating positron lifetime data and processing positron annihilation data in accordance with a Doppler –broadening algorithm.

Art Unit: 3663

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

### **Conclusion**

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 571-272-6880. The examiner can normally be reached on 6:30-5:00, Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJP  
October 13, 2005

